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Macroeconomic Policies Interaction & the Symmetry of Financial Markets' Responses

Abstract: This concise study analyses the symmetry of financial markets` responses to macroeconomic policy interaction in the United Kingdom. Employing the Vector Auto-regression (VAR) model on monthly data of the British financial sector and macroeconomic policies from January 1985 to August 2008, this study found that the equity and sovereign debt markets showed identical symmetry in response to macroeconomic policy interaction.

Keywords: - Financial Markets, Macroeconomic Policy Interaction, Symmetry of financial markets responses

JEL Classification: E44, E61, G12, G18

1. Introduction

Macroeconomic policies are the most vital tool for the achievement of economic objectives, whether it is monetary policy to control the availability and cost of monetary and credit or fiscal policy to accomplish the government's financial obligation. There is a fairly broad consensus among academics and policy circles that the macroeconomic policies have significant effects which are not limited to real economy and a number of studies, for instance, Bredin et al. (2005), Ardagna (2009) and Arnold et al. (2010) that reported significant impact of macroeconomic policies on the financial sector. Concomitantly, this study focuses on analysing the symmetry of financial market i.e. sovereign debt and equity markets` responses to macroeconomic policy interactions.

The first and legitimate question could concern why particular segments of the financial market on which this study is focused are only Stock (equity) and Bond (sovereign debt) markets? A simple answer and reason of this choice could be the limited scope of this treatise as we are unable to consider all segments of financial markets. However, it is particularly because of the Wealth Effects of the stock and bond markets which are very important for the economy (See Malikane and Semmler (2008), Funke et al. (2010) and Airaudo (2011). In addition, Broome and Morley (2004) also found that stock prices are a significant indicator of future financial outlook. The third and final reason of this choice specifying the term financial stability, for which we followed the footsteps of Foot (2003) and Khorasgani (2010), can be defined as price oscillations of financial assets and generality of financial markets and institutions. Also, a unique characteristic of this study considers the symmetry of financial market responses to policy interaction rather than to solely focus on the response of the financial market. Perhaps it is due to the fact that an important and rationale aspect of analysing the responses of the stock and bond markets to macroeconomic policies is the symmetry of their responses. Particularly if the policy target is a specific financial market, for instance the stock market, it would be equally important to consider the response of the bond market to any policy decision aiming at the former, perhaps the logic of doing so becomes more explicit if we refer to earlier cited studies which considered stock as well as bond markets important for economic stability. Hence, potential wealth effects raised by positive performance of one financial market due to policy measures may be offset by adverse outcome in the other if the same policy stance is not appropriate for the latter.

On the symmetry of stock and bond market responses, Gulley and Sultan (2003) showed that bond and stock markets exhibit a positive response to expansionary monetary stance and a negative response to contractionary monetary stance. On the other hand, Tavares and Valkanov (2003) showed that contractionary fiscal policy negatively affects stock and bond markets. These two studies by Gulley and Sultan (2003) on monetary policy and the study by Tavares and Valkanov (2003) on fiscal policy documented a homogeneous response of both markets to a monetary policy decision. However, there are two caveats and limitations in these two studies. Firstly, both of the studies were limited to a single policy, i.e. either monetary or fiscal policy, although there is strong support for analysing monetary and fiscal policies together (see e.g. Porqueras and Alva, 2010; Sims, 2011). Secondly, on the dynamic relationship between stock and bond markets, Paulson (2013) argues that the association between stock and bond markets in US has been dynamic in the last few decades and although it has remained mostly positive, there have been some periods of negative relationship.

Intention to consider policy interaction also stemmed from the role of fiscal in complimenting monetary policy efforts, in this regard we acknowledge the earlier seminal work and argument by Sargent and Wallace (1981) that the fiscal policy should complement monetary policy for price stability. On the policy combination analysis, Dixit and Lambertini (2001; 2003) strongly argued for the importance of policy coordination. In this regard, it is worth mentioning the argument by Leeper that "Analysing one policy is like dancing a tango solo: it's a lot easier, but it is incomplete and ultimately unfulfilling" (1993, p.3). The interdependence between monetary and fiscal policies is also documented by Zubairy (2009) and Davig and Leeper (2011) as monetary stance may counteract fiscal policy impact and vice versa. Moreover, the bond market is equally important as the stock market (see e.g. Campbell, 1995; Johnson et al., 2003). Hence, it is vital to consider the symmetry of financial market responses to policy interaction because a policy combination positively affecting one market might have negative effects on the other. On this aspect, the nearest we can get is the recent seminal work by Nasir and Soliman (2014) on the implications of policy combination for financial sector; however, despite the earlier cited rationale, the symmetry of the response of financial markets to policy decision could not gain any attention. Therefore, the main theme of this study is to analyse the symmetry or whether the responses of both markets are homogeneous or heterogeneous. To serve this purpose, we would analyse the simultaneous responses of stock and bond markets to macroeconomic policy interaction.

2. Theoretical framework

The theoretical model has representative household with the income constraint utility and preferences. The Euler equation would be as follows:

$$\text{Max}_{ct,\, lt} \qquad U = E_0 \sum_{t=0} ßt \;\; u\,(c_t,\, l_t) \tag{1}$$

With the objective of household utility (U) maximization from streams of consumption (c) and leisure (l); *E0* is the expectations operator (rational expectations) based on agent observing all current macroeconomic variables; $ß \in (0; 1)$ is the discount factor, while u is instantaneous utility function and c_t and l_t are levels of consumption and leisure at time t. The household portfolio constitutes two types of assets i.e. Stock(s) and Government Bonds (b). The wealth of household is generated by two sources which are financial wealth (A) i.e. the income from financial assets (stocks and bonds) and the non-financial wealth (H) which is the labour income. Therefore, the total financial wealth would be as follow:

$$A = \Sigma_{i=1}^{\infty} \mathrm{s} + b \tag{2}$$

The theoretical model follows the work of Altissimo et al (2005) and Nasir and Soliman (2014) where the intertemporal consumption of the household also depends on financial wealth and takes the following form:

$$\begin{aligned} \mathrm{C} &= mpc_{\mathrm{W}}[A + \mathrm{H(Y)}] \\ &\approx mpc_{\mathrm{W}}\,\mathrm{A} + mpc_{\mathrm{Y}}\mathrm{Y} \end{aligned} \tag{3}$$

Where C denotes consumption, A is the financial wealth constituting stock and bonds ($A = \Sigma_{i=1}^{\infty} \mathrm{s} + b$), H represents human wealth and Y denotes value of expected labour income net of taxes.

The proportionality coefficient (mpc) measures the marginal propensity to consume out of financial wealth and income, respectively. Equation (3) can be transformed and written as:

$$\begin{aligned} \frac{\Delta C}{C} &= [\underbrace{\mathrm{mpc_w}\frac{\mathrm{A}}{\mathrm{C}}}_{e_w}]\frac{\Delta A}{A} + [\underbrace{\mathrm{mpc_Y}\frac{\mathrm{Y}}{\mathrm{C}}}_{1-e_w}]\frac{\Delta Y}{Y} \\ &= \underbrace{\Sigma\,\mathrm{mpc_w}\frac{\mathrm{A_j}}{\mathrm{C}}\frac{\Delta\mathrm{A_j}}{\mathrm{A_j}}]}_{e_{wj}} + [\mathrm{mpc_Y}\frac{\mathrm{Y}}{\mathrm{C}}]\frac{\Delta Y}{Y} \end{aligned} \tag{4}$$

Equation (4) implies that wealth elasticity of consumption (e_w) depends on $\mathrm{mpc_w}$ as well as wealth consumption ratio of each component *j*.

The national income (Y) is presented as follows

$$\mathrm{Y} = C + I + G + X - M \tag{5}$$

Whereas I is investment, G is Government spending, and (X-M) is the balance of trade, it is obvious that *C* consumption is the vital part of national income, hence the wealth (*A*) effects of financial assets (stocks and bonds) have considerable effects on consumption.

Suppose that the household portfolio constitutes two classes of financial assets, stocks (s) and bonds (b) which are affected by the macroeconomic policies, therefore for monetary policy:

$$\text{Financial Wealth (A)} = \Sigma_{i=0}^{n} \frac{A_{ti}^{e}}{(1+ri)^{ti}} \tag{6}$$

where A_t^e is the expected financial wealth from financial assets (stocks and bonds) and r is the rates of interest (monetary policy). For fiscal policy we follow the specification by Ardagna (2009) for US stock market and fiscal policy:

$$Financial_{ijt} = \sum_{i=1}^{n} (Fiscal_{ijt}) \tag{7}$$

where $Financial_{ijt}$ is the stock market and $Fiscal_{ijt}$ is fiscal stance in time t_i. However, we include the bond market and monetary policy as specified in Equation (3). Hence our model would have the following representation:

$$\begin{aligned} Financial\ (A)_{(stock,\ bond)} &= \sum_{i=1}^{n} \left(Fiscal_{ijt} + \frac{A_{ti}^{e}}{(1+ri)^{ti}}\right) \\ &\approx f\,(Financial_{ijt}, Monetary_{ijt}) \end{aligned} \tag{8}$$

where A is the financial wealth of the household constituting stocks and bonds, $Fiscal_{ijt}$ is the fiscal policy stance, and $Monetary_{ijt}$ is the monetary policy stance in time t.

Having access to two policies means there could be four possible policy combinations[1].

3. Empirical Framework

Employing a VAR model, we used reasonably high frequency (monthly) data, considering the fact that the financial markets exhibit a fairly volatile pattern and better estimates are obtained by high frequency data (Hautsch, 2011). The Bank of England's official Bank Rate is used as a proxy for monetary policy stance. It is the official instrument used by the Bank of England to achieve its objective of price stability[2]. However, in the context of the existing literature, Bernanke and Blinder (1992) while analysing the various transmission mechanism of monetary policy in their study argued that the federal funds rates are good measures of monetary policy, in specific to the UK the Bank Rate is equivalent of the federal funds rates. The Public Sector Net Cash Requirements formally known as Public

[1] (a) Expansionary Fiscal-Expansionary Monetary, (b) Expansionary Fiscal-Contractionary Monetary, (c) Contractionary Fiscal-Contractionary Monetary(d) Contractionary Fiscal-Expansionary Monetary.

[2] The Bank's monetary policy objective is to deliver price stability – low inflation and it targets inflation at 2% rate of consumer price index, details of monetary policy framework available at: http://www.bankofengland. co.uk/monetarypolicy/Pages/framework/framework.aspx

Sector Borrowing Requirements (PSBR) as a percentage of GDP is used to represent fiscal policy. It represents the monthly fiscal deficit. On the aspect of fiscal stance, we could have either used debt or deficit to income (GDP) ratios, however we chose the latter and the rationale of doing so is supported by the Muscatelli et al. (2004) as they declared deficit as better proxy for fiscal policy stance than the debt. The bond market is proxied by the monthly averages of the real yield on UK Government bonds (Gilts) which is Inverse of bond prices as a proxy for bond markets response; this is due to the importance of Yield for economic agents (Campbell, 1995). The Yield on bonds is also important for the government as it represents its borrowing cost; it also reflects the confidence of market participants and investor in bonds and, importantly, returns on investment. The monthly average values of the FTSE-100 index are used as a proxy for the stock market. Most of the studies acknowledged earlier used stock prices and indices. In particular in the context of subject analysis there are studies such as Funke et al. (2010) and most recent evidence by Airaudo (2011) which reported the Wealth Effect of stock market and used stock indices to represent stock market. On practical side, the choice of FTSE-100 is due to the reason that it represents the major companies with more than 80% of the total capitalisation of the entire London Stock Exchange (L.S.E), moreover it is the official index maintained by the FTSE group which is a joint venture of Financial Times and the London Stock Exchange. Data is obtained from the Office of National Statistics, FTSE Group, and the Bank of England. The data spans the period from January 1985 to August 2008 which, in our view, provides sufficient time horizon and avoids the extraordinary events of the Global Financial Crises (2008) which led to massive fluctuations in stock and bond markets (Nasir and Soliman, 2014). Considering the fact that the dataset includes multiple variables and a time series, the employed Vector Auto Regressive (VAR) model is widely used for such datasets (see Basu and Michailidis 2013). The VAR is used with interrelated time series and for analysing the dynamic impact of random disturbances on the system of variables. In the VAR model, the endogenous and explanatory variables interact simultaneously, hence there is an extended information set, which makes it a more adequate presentation of key aspects of an economic system than a standard multiple regression model (Pecican, 2010). The VAR approach sidesteps the need for structural modelling by modelling every endogenous variable in the system as a function of the lagged values of all endogenous variables in the system. Since only lagged values of the endogenous variables appear on the right-hand side of each equation there is no issue of simultaneity. Importantly, the assumption that any disturbances are not serially correlated is not restrictive because any serial correlation could be absorbed by adding more lagged y's. As such, using VAR, any serial correlation of errors does not become an issue.

To start with we performed the ARCH analysis in order to check if the volatility of financial markets persists, results shown in Table 1.

Table 1: Auto Regressive Conditional Hetroskadicity (ARCH) Test

Lnstock			
F-statistic	1.746	Prob. F(3,277)	0.158
Obs*R-squared	5.216	Prob. Chi-Square(S)	0.157
LnBond			
F- statistic	1.980	Prob. F(3,277)	0.117
Obs*R-squared	5.898	Prob. Chi-Square(3)	0.117

*ARCH (Marquardt) test

The ARCH effects were not found at 5% level of significance. Hence we proceeded to our VAR analysis. The Unit root tests using the ADF method were performed to satisfy the assumption that our data series is stationary. The results are presented in Table 2. The test statistics were greater than the critical values; hence the null of unit root was rejected after taking the first difference at 5% as well as 1% significance level. ADF test results imply that all data series are 1st difference stationary or I (1) variables.

Table 2: Augmented Dickey-Fuller Unit Root Test

Variable	ADF Test Stat*	1 % level**	5% level	P-value
At level *I(o)*				
LnBond	-0.402	-3.453	-2.871	0.905
LnStock	-1.876	-3.990	-3.425	0.664
Fiscal	-1.995	-3.992	-3.426	0.600
LnMonetary	-2.238	-3.991	-3.425	0.466
1st Difference *I(1)*				
LnBond	-16.775	-3.991	-3.426	0.000
LnStock	-16.455	-3.991	-3.426	0.000
Fiscal	-4.252	-3.993	-3.427	0.004
LnMonetary	-8.424	-3.991	-3.425	0.000
Residual	-16.723	-3.991	-3.426	0.000

*ADF test statistics of LnBond, Fiscal and Monetary Policy. **Critical value at 1% level of significance. ***Critical value at 5% level of significance.

Symmetry of financial markets' responses

The Vector Auto regression (VAR) model adopts the following form:

$$Y_t(\text{LnStock})=\text{Constant}+ßY_{t-1}(\text{LnStock})+ßY_{t-2}(\text{LnStock})...+ßX_{t-1}(\text{fiscal})+ ßX_{t-2}(\text{fiscal})..ßX_{t-1}(\text{LnMonetary})+ßX_{t-2}(\text{LnMonetary})...ßY_{t-1}(\text{LnBond})+ Y_{t-2}(\text{LnBond}) \quad (9)$$

$$Y_t(\text{LnBond})=\text{Constant}+ßY_{t-1}(\text{LnBond})+ßY_{t-2}(\text{LnBond})...+ßX_{t-1}(\text{fiscal})+ ßX_{t-2}(\text{fiscal}).....ßX_{t-1}(\text{LnMonetary})+ ßX_{t-2}(\text{LnMonetary}).. ßY_{t-1}(\text{LnStock})+ ßY_{t-2}(\text{LnStock})..+ et \qquad et \sim N(0, \sigma 2), \quad (10)$$

Where Y_t and X_t are (n x 1) vector of time series endogenous variables, $ß_i$ are the (n x n) coefficient matrixes and et is the (n x 1) white noise or unobservable vector process with assumptions of no autocorrelation and independent distribution, i.e. et ˜ N (0, σ2).

To find the most appropriate number of lags to be included in the model, the optimal lag selection tests were performed as shown in Table 3.

Table 3: Optimal Lag Selection

Lags	LR	FPE	AIC	SC	HQ
11	78.082	0.000	-5.8	-3.408	-4.84
12	124. 010*	2.33e-08*	-6.240*	-3.635	-5.194*
13	10.431	0.000	-6.17	-3.353	-5.039

*Significance level (5%), LR: sequential modified LR test statistic, FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion.

Our results presented in the table above should that the unanimous and Twelve lags were suggested as optimal by all criteria, hence twelve lags were considered. Thereafter, the Johansen Co-integration tests (Table 4) were performed to find if the variables are co-integrated and if there is a long-run association among the variables. In case there is the co-integration relationship, we employ the Vector Error Correction (VEC) model which is a restricted form of the Vector Autoregression (VAR) model. The basic feature of a VEC model is that it includes an error correction term (U(t-1)), which is a one period lag residual term that guides/restores the system to equilibrium. However, our results of both Unrestricted Co-integration Rank tests (Trace & Max Eigen statistics) show that the null of no co-integration could not be rejected at the 5% benchmarked level of significance.

Table 4: Johansen Co-integration Test

Unrestricted Co-integration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigen value	Trace Statistic	0.05 Critical Value	Prob.**
None	0.052	26.666	47.856	0.866
At most 1	0.024	12.055	29.797	0.9299
At most 2	0.018	5.204	15.495	0.786
At most 3	0	0.075	3.841	0.783

Unrestricted Co-integration Rank Test (Maximum Eigen value)

Hypothesized No. of CE(s)	Eigen value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.052	14.611	27.584	0.778
At most 1	0.024	6.85	21.132	0.96
At most 2	0.018	5.128	14.265	0.725
At most 3	0	0.075	3.841	0.783

* Hypothesis of no co-integration was rejected by Trace & Max Eigen value test.
** MacKinnon-Haug-Michelis (1999) p-values.

Hence, it does not require to include an error correction terms and a simple or unrestricted VAR Model (Equations 9 and 10) was employed and estimated with all series in first difference by using Ordinary Least Square (OLS) methods. To test the robustness of our VAR model, we also employed test diagnostic and the results presented in Tables 5 and 6 show that the null of Homoskedasticity (White test) and no serial correlation (BG test) are not rejected at the 5% significance level. It implied that the model and empirical results are non-spurious as there has been no Heteroskedasticity or Autocorrelation found. Furthermore, monetary policy was found to be significantly exogenous to the stock market while fiscal policy had a significant exogenous impact on bond markets.

Table 5: Diagnostic Test (Heteroskedasticity, Autocorrelation & Exogeneity) - Equation 9

Heteroskedasticity : White Test	Test Stat		P value
Obs R-Squared	63.712	Prob. Chi-Square (48)	0.064
Breusch-Godfrey Serial Correlation LM test			
Obs R-squared	18.034	Prob. Chi-Square(12)	0.114
Block Exogeneity Wald test			
Fiscal	15.721	df-12	0.204
Monetary	20.014	df-12	0.066**
LnBond	9.797	df-12	0.633
All	48.036	df-36	0.086**

** Significant at 5% level ** Significant at 10% level

Table 6: Diagnostic Test (Heteroskedasticity, Autocorrelation & Exogeneity) - Equation 10

Heteroskedasticity : White Test	Test Stat		P value
Obs R-Squared	58.431	Prob. Chi-Square (48)	0.144
Breusch-Godfrey Serial Correlation LM test			
Obs R-squared	12.48	Prob. Chi-Square(12)	0.407
Block Exogeneity Wald test			
Fiscal	27.085	df-12	0.007*
Monetary	10.391	df-12	0.581
LnStock	12.957	df-12	0.372
All	52.653	df-36	0.036**

* Significant at 1% level ** Significant at 5% level

Most importantly, the joint impact of all variables was significantly exogenous for bond and stock markets. Concomitantly, the exogeneity test results implied that policies are most effective for both markets when they are combined. In the light of existing literature on the subject of policy interaction and coordination, it supports the idea of coordination advocated by Dixit and Lambertini (2003) for real economy and Jansen et al. (2008) and lately Nasir and Soliman (2014) for financial markets.

In VAR models with long lags, often various coefficients fall below the significance level. Therefore, parametric statistical "Wald" tests were carried out to examine whether the response variables are affected by the joint impact of the explanatory variables and their coefficients. Results are reported in Tables 7 and 8.

Table 7: Wald Test: Vector Autoregression Model – Stock Market

Test Statistic	Value	df	Probability
Fiscal Policy			
F-statistic	1.31	(12,223)	0.213
Chi-square	15.721	12	0.204
Monetary Policy			
F-statistic	1.528	(12,223)	0.099***
Chi-square	18.34	12	0.089***
Fiscal & Monetary Policy (Coordination)			
F-statistic	1.531	(24, 223)	0.041**
Chi-square	36.749	24	0.030**

*Significant at 1% level, ** Significant at 5% level *** Significant at 10% level

We found that monetary policy was most effective for stock market while fiscal policy was significantly influential on stock market. Most interestingly, the results presented in Table 7 show that the joint impact of macroeconomic policies on the stock was highly significant (p value < 0.05). The Wald test results showed that substantial volatility of bond markets could be attributed to an endogenous factor. However, in the context of macroeconomic policies, fiscal policy has been the major driver of bond market behaviour at 1% level of significance, whereas monetary policy could not show a long run association with bond market`s dynamics. The basic reason behind this outcome is that after first few lags, the impact of explanatory variable on response variable becomes statistically insignificant as it starts to fade out. Interestingly enough, coupling macroeconomic policies and using a combination of macroeconomic policies showed a statistically significant (5% level) impact on bond markets. Concomitantly, these findings further supported the notion of policy coordination and joint policy action in line with the earlier discussed treatise.

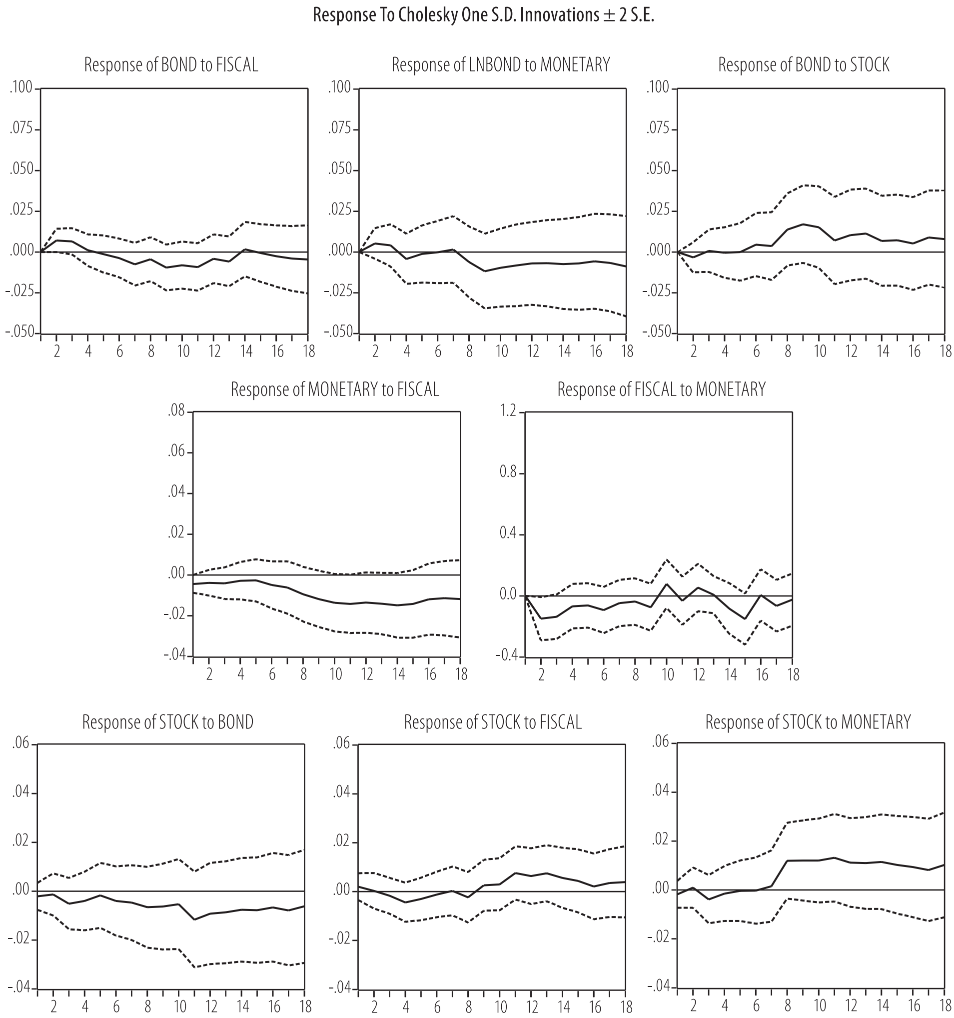
Table 8: Wald Test: Vector Autoregression Model – Bond Market

Test Statistic	Value	df	Probability
Fiscal Policy			
F-statistic	2.257	(12, 223)	0.010*
Chi-square	27.085	12	0.007*
Monetary Policy			
F-statistic	0.865	(12,223)	0.582
Chi-square	10.391	12	0.581
Fiscal & Monetary (coordination)			
F-statistic	1.491	(24, 223)	0.071***
Chi-square	35.795	24	0.057**

*Significant at 1% level, ** Significant at 5% level *** Significant at 10% level

Despite the fact that we have presented the empirical results obtained from our Vector Auto-regression (VAR) Model in details hitherto, it does not show an overall snapshot of the whole analysis. Moreover, strategy of scrutinizing each coefficient is also not very fruitful as they become insignificant after few lags, putting aside the inconsistency in their sign and size. In such a scenario, the results become rather difficult to interpret in terms of an overall responsiveness of the dependent variable to the explanatory variables. To address this issue, we can perform an Impulse Response Function (IRF) analysis (Canova 2007). Therefore, to get a big picture, we perform an Impulse Response Function (IRF) Analysis and results are presented in Figure 1.

Figure 1: Impulse Response Function (IRF)



The loss of significance over longer lags in the VAR model is prominent in the IRF analysis. Our expectations to fully capture the dynamics of the system being modelled deal with a risk that the longer the lags, the greater the number of parameters that must be estimated and the fewer the degrees of freedom. Moreover, the presence of several lags of the one and the same variable leads to parameter estimates not being statistically significant (See Pindyck and Rubinfeld, 1997; Pecican, 2010). Hence, although the impact of explanatory variable does not meet the statistical level of significance, it is still important as we are to look at this phenomenon in a broader context and make the best judgment based on central view of central tendency. Looking at the significance of financial sector dynamics and concomitant influence on the economy, Carroll et al., (2011) showed that the wealth effects are instantaneously created with an increase in the value of financial assets, then transmitted into the real economy in subsequent periods to remain persistent for several quarters before being completely defused. Moreover, we need to relate the IRF analysis with the Wald test results, which indicate that macroeconomic policies and particularly a combination thereof have a significant influence on the financial sector.

A one standard deviation shock to fiscal policy resulted in a surge in bond yield and a drop in stock prices, indicating a negative response from both bond and stock markets as prices of bond plunge. This finding was contrary to the study by Tavares and Valkanov (2003) which showed that contractionary fiscal policy negatively affect stock and bond markets. Perhaps the addition of monetary policy in the analysis gives us better insight into the relationship among underlying variables. On the other hand, shock to monetary policy (increase in bank rates) received a similar response from stock and bond markets, although for a slightly longer period for the latter. These findings are in line with the Gulley and Sultan (2003) study which showed that bond and stock markets exhibit a positive response to expansionary monetary stance. Looking at the interdependence between the two markets, the positive shock from the stock market resulted in a minor decrease in bond yield (increased prices) implying a positive co-movement between the two markets, although the increase in yield in later periods showed a fall in bond prices. However, the stock market showed a consistent negative response to increases in the bond yield which further confirmed that the dynamics of the sovereign debt market are by miles more significant for stability of stock markets than the other way round. It also implied that over longer periods, market participants adjust their portfolio according to the performance of both stock and bond markets. The monetary and fiscal policies also showed interdependence as fiscal expansion leads to constant low bank rates (expansionary monetary stance). On the other hand, positive shock to bank rates led to fiscal consolidation. These findings were in line with the Andrew et al. (2011) argument that policies effects spill over to each other. However, in context of the subject study, the interdependence of macroeconomic policies is very important for the stock and bond market. Nevertheless, their interdependence which is explicit in symmetry of their response leads us to the conclusion below.

4. Conclusion

The empirical analysis showed that macroeconomic policy interaction and interdependence have a significant influence on both bond and stock markets. However, by comparison, the impact of monetary policy was more influential on the stock market whereas the fiscal policy was more effective for the bond market. Nevertheless, the joint impact of both policies was significant on both markets which supported the idea of policy interaction and combination. Furthermore, the macroeconomic policies also showed considerable interdependence as expansionary fiscal policy led monetary policy to adopt an expansionary stance whereas contractionary monetary policy resulted in fiscal consolidation. This interdependence between policies on one hand supported our notion of joint policy analysis and provided justification to investigation of financial markets` responses on each other. In the context of our main theme of the symmetry of stock and bond markets, both markets showed a positive response to contractionary fiscal and expansionary monetary policies. Therefore, we can conclude that the symmetry of financial market response to policy interaction is homogenous. It leads to policy implication of our findings and conclusion which urges on policy coordination by disciplined fiscal and accommodating monetary stance for a positive and symmetric response from financial markets.

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